ENTOMOLOGY.—*New species of flies of the genera* Baccha *and* Rhinoprosopa (Syrphidae).[1]

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In recent studies of syrphid flies, some new species of *Baccha* and *Rhinoprosopa* from the neotropical regions were discovered and are described in this paper. The types, except where designated, are in the collection of Dr. C. L. Fluke, of the University of Wisconsin, whom I wish to thank for the loan of this material. Paratypes, where available, are in the author's collection.

Baccha minima, n. sp.

Abdomen with a pair of widely separated yellow rectangles in the basal corners of the fourth segment. Third segment with a pair of basal vittae on each side. Related to *sativa* Curran.

Male.—Length 8 mm. Head: face and front yellow, the latter with a black dot on lunula. Pile sparse, black. Antennae orange, third joint missing. Thorax: mesonotum brassy black with a pair of wide, yellowish-gray vittae running nearly to the scutellum. Humeri and lateral margins widely yellow; a medial spot adjacent to the humeri, yellow. Pleura yellow, brownish on the metapleura and hypopleura. Scutellum yellow with a few black hairs and one or two black fringe hairs. Abdomen: slender, shining black; the sides of first segment are yellow, the remainder brown. Third segment with a pair of narrowly separated yellow vittae in the middle of each side. Fourth segment with a large, rectangular yellow spot on the lateral margins and base of the segment, the two spots not widely separated. Fifth segment shining black. Legs: yellow, the hind femora with a brown subapical annulus, their tibiae with the middle yellow and proximal to it a dark brown annulus and the distal third brown. Hind basitarsi yellowish brown, the apical joints dark brown. Wings: pale brown, the stigmal cell quite dark; costal cell clear; alulae absent.

Holotype, male, Nova Teutonia, Brazil, Fritz Plaumann. (Fluke collection.)

Baccha delicatissima, n. sp.

Characterized by the dark aeneous-brown mesonotum and scutellum. Hind femora and tibiae brown, yellow centrally. Related to *macer* Curran.

Male.—Length 7.5 mm. Head: face and front yellow, the former with a black spot on lunula and black pile, facial pile yellow. Antennae orange, blackish above. Thorax: mesonotum brassy brown, the margins obscurely yellow without apparent vittae. Scutellum concolorous with four or five long black hairs, no fringe or collar. Halteres black, squamae pale. Pleura wholly yellowish. Abdomen slender, brownish black; second segment light brown on the basal corners, with small, oblique, widely separated, light-brown spots just past the middle. Third segment with a similar oblique middle spot on each side. Fourth segment with a wide, separated vittate spot beginning some distance from base and near the middle of the segment proceeding diagonally to the margin. Fifth segment with a pair of oval vittate spots. Legs: yellowish, the middle femora except at base, all of hind femora and tibiae pale brown. Femora with subapical bands and tibiae dark brown basally and apically. Wings: pale brown; stigmal cell dark, costa lighter; alulae absent.

Female.—Similar to the male, front with a slender brown stripe; spots of fourth segment form well-marked, short, inverted V's.

Holotype male and *allotype* female, Nova Teutonia, Brazil, Fritz Plaumann. (Fluke collection.)

Baccha zilla, n. sp.

Related to *virgilio* Hull. The front is wholly pale, the third and fourth segments of the abdomen with two vittae on each side, each pair basally confluent. Scutellum and pleura, except the metapleura, pale yellow.

Female.—Length 8 mm. Head: face and front pale yellow, the latter with sparse black hairs, the vertex as far as the first ocellus blackish; lunula with a black dot, antennae orange, the third joint missing. Thorax: greenish shining black, with a pair of pale gray-brown, anteriorly wide vittae reaching over the anterior half. Pleura except the metapleura, the humeri, the wide lateral margins and scutellum, all pale yellow. The scutellum has five or six pale hairs

[1] Received March 13, 1943.

on the ventral fringe and a very few hairs on disc. Abdomen: elongate; slender; about the same length as wings; the first segment is yellow on the sides, with yellow pile; second segment with a long, narrow, medial black vitta, the apical fifth black, the sides yellowish; third segment with a long, slender pair of yellow vittae reaching to the base and basally fused on each side of the segment. They cover nearly three-fourths the length of the segment. Fourth segment similar, the vittate spots shorter. Fifth segment with a pair of short, reddish vittae. Legs: yellow, the hind femora brownish subapically, their tibiae pale brown, yellow in the middle, their tarsi dark brown. Wings: pale brown; stigma dark; alulae absent.

Holotype.—Female, Nova Teutonia, Brazil, Fritz Plaumann, and a *paratype* from Nova Teutonia and one also Puyo, Ecuador, December 1938, F. M. and H. H. Brown. (Fluke collection.)

Baccha nerissa, n. sp.

Related to *columbiana* Curran. The pleura are steel-blue. Hind femora and tibiae black. Third to fifth abdominal segments trivittate.

Female.—Length 11 mm. Head: face yellow laterally, its middle and the cheeks blue-black and white-pollinose; the front is black, black-pilose, narrowly yellow on the sides and linearly white-pubescent. Antennae dark brown, the third joint orange below, blackish brown above, and rather elongate. Thorax: mesonotum dull black, with a faint bronze cast and a pair of wide, narrow, gray vittae reaching almost to scutellum. Pleura steel-blackish; scutellum dark brown, with sparse black pile and long, mixed, ventral fringe. Abdomen: petiolate, the first segment metallic black and extending onto base of second. Second segment orange laterally and brown apically with opaque central triangles; third and fourth segments reddish brown, with a medial black vittae and a lateral black triangle, all apically confluent, the postmargins brown. Fifth segment trivittate; sixth trapezoidal, basally flattened and black, laterally compressed apically. Legs: first four brown, dark at base of femora, pale yellow at base of tibiae; hind femora and tibiae black, tibial base narrowly yellow. Hind basi tarsi basally black; remainder of tarsi pale. Wings: pale brown, dark brown on anterior border, almost as far as end of stigmal cell. Alulae wide.

Holotype female, Pinas, Ecuador, 1,200 meters, July 21, 1941, D. B. Laddey. (Fluke collection.)

Baccha nigrocilia, n. sp.

All the legs jet black, with similar pile, longer on the hind pair, the hind tarsi in part yellow. Wings brown on basal half, anterior tarsi dilated. Related to *hirta* Shannon.

Female.—Length 9 mm. Head: face and front steel-blue, the former narrow yellow on the sides, the latter protuberant anteriorly, widely shining black in the middle, with black pile; lunula and antennae black. Thorax: mesonotum and scutellum shining black, with black pile and ventral fringe, the notapleura bluish, the humeri sepia, the pleura steel-blue with vertical silver pubescence and silver pile and black-pilose on posterior half. Squamae and fringe black. Abdomen: strongly petiolate; first segment shining black and steel-blue posteriorly; second segment steel-blue on the basal third and side margins, with in the middle a pair of oblique black spots meeting above. Third segment reddish in the anterior corners, with large, central, opaque black triangle, which is postmedially indented; the posterior and anterior margins are shining. Fourth segment steel-blue, with, on each side, a large, opaque triangle posteromedially connected to a median black vittae that does not reach the base. Fifth segment with three black vittae on steel-blue ground. Sixth segment flattened, trapezoidal. Legs: jet black and pilose, the pile quite long on the hind pair; apex of hind basi tarsi and next two segments whitish. Anterior tarsi dilated, wings brown on basal half. Alulae very large, stigmal cell pale.

Holotype female, São Paulo, Brazil, February 18–26, 1940, Ilha Seca; one *paratype* female. (Fluke collection.)

Baccha nigrocilia inclusa, n. var.

In this variety, from Colombia, the vittae are slender and isolated and contained within the triangles of opaque black upon the abdominal segments.

Baccha nigrocilia hirtipes, n. var.

In this variety, from Colombia, there are large yellow-brown triangles in the lateral corners of the second to fifth segments; the vittate spots are also yellow.

Rhinoprosopa lucifer, n. sp.

Related to *aenea* Hull but the pleura are chiefly black, the facial stripe is wider. Hind tibiae black.

Male.—Length 11 mm. Head: the cheeks and sides of face are widely pale yellow; middle of face widely jet black. The sides of the front are orange, broadly opaque black down the middle, expanding to reach the sides of the shining black lunula. Face produced considerably beyond the antennal apex, with a low tubercle below the antennae. Antennae reddish brown, the third joint blackish except at the ventral base; arista black. Pile of front black and long and confined to the top and sides. Vertex black with black pile. Thorax: mesonotum brassy brownish or black, the anterior half brownish-gray pollinose, without definite vittae and with long yellow pile. Humeri, the whole of notapleura, postcalli, and a sharp wide basal margin on the scutellum yellow. Remainder of scutellum dark brown, lighter on the margin, its pile long, sparse, and black, with longer marginal bristles and no fringe. Only the posterior half of the mesopleura is yellow. Abdomen rather slender, especially at the end of second segment, black with yellow markings as follows: all but the posterior margin of the second segment in the middle yellow. Second segment with a pair of long, oblique, anteriorly approximated, bright, central, yellow stripes upon the sides of the segment, each stripe margined anteriorly with opaque black and posteriorly with an opaque triangle. Third segment with similar pattern, the stripes almost confluent anteriorly. Fourth segment with larger, similar stripes which are fused throughout most of their length in the middle. Fifth segment with oblique, transverse, short fascia fused medially. Legs: yellow, the hind femora dark brown on more than the apical half, their tibiae and tarsi very dark brown. Wings: wholly deep brown with slender alulae, equally developed throughout.

Holotype male, Pinas Ecuador, 1,600 meters, July 25, 1941, D. B. Laddey. Two *paratype* males, same data. (Fluke collection.)

ZOOLOGY.—*A folliculinid associated with a hermit crab.*[1]

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The folliculinids are a small group of ciliated Protozoa living in colored, chitinoid tests, scarcely visible to the naked eye and firmly attached to various objects in all the oceans of the world. When the animals leave these tests to make others, the old ones persist and are recognizable as representing species and genera.

Hermit crabs drag about deserted snail shells, within which their soft spirally grown hind bodies are protected. That certain folliculinids live attached to the soft bodies of hermit crabs, within the shells of snails, was observed in 1888 by Giard, in France. He saw them as little black spots on the hind body, near the limbs or near the end of the hermit crab *Pagurus bernhardus*, then called *Eupagurus bernhardus*. These specks proved to be groups of folliculinids, which he thought to be well placed to receive currents of water along the hind body. The shape of each test was so peculiar, being pinched in with an upper and lower part, something like a double gourd or gourd-shaped piece of pottery, that he made them representatives of a new genus, *Pebrilla*.

No other mention of this association was made for nearly 50 years, and then, in 1936, Fauré-Fremiet on the coast of France found these same folliculinids associated with the same hermit crab, but also with another, *Clibanarius misanthropus*. He found them standing solitary or in groups of four to seven on the hind body of the crab only, and never upon the inside surface of the snail shell.

Though the pinched-in shape of Pebrilla suggests some outside force, Fremiet observed the animal secreting its test in two efforts, first the posterior part and then, with change of shape and of secretion zone, the anterior part, entirely from within and with no external compulsion. This folliculinid, *Pebrilla paguri* Giard, is known only as

[1] Received March 26, 1943.